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ABSTRACT

The installation of the SWRL/Ginn Kindergarten Program on a wide-scale national basis provided an occasion to test the claim that important instructional outcomes may be attained reliably in a variety of school settings with a wide variety of pupils through the use of a systematically developed educational product. Characteristics of the participating schools and of program utilization are presented, together with preliminary data indicating consistent, reliable attainment of a high level of pupil proficiency on criterion exercises related to the instructional units. (Author/AA)

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INSTRUCTIONAL EFFECTS OF A SYSTEMATICALLY DEVELOPED EDUCATIONAL PRODUCT: ADVANCED RELEASE OF QUALITY ASSURANCE DATA FOR SWRL/GINN KINDERGARTEN PROGRAM INSTALLATION 1972-73

Ralph A. Hanson and William J. Doherty

ABSTRACT

The installation of the SWRL/Ginn Kindergarten Program on a wide-scale national basis provided an occasion to test the claim that important instructional outcomes may be reliably attained in a variety of school settings with a wide variety of pupils through use of a systematically developed educational product. The paper summarizes preliminary data pertinent to this proposition.

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Through a sequence of events sufficiently complex and important to warrant entirely separate documentation, the SWRL/Ginn Kindergarten Program was used in the instruction of approximately 10 percent of the kindergarten youngsters of the nation in 1972-73. With the endorsement and cooperation of the United States Office of Education and 18 state education agencies, arrangements were made by SWRL with local school districts to conduct a large-scale quality assurance program, termed TQA, in conjunction with the installation.

Briefly, TQA yielded information on school demographic characteristics, entering ability of pupils, program use and pacing, and end-of-program pupil performance for the Instructional Concepts Program (ICP), and the Beginning Reading Program (BRP). A brief description of the instructional programs and of TQA materials and procedures is presented in the Appendix. An overview of the design and operation of TQA by SWRL is given in Hanson and Bailey (1973).

TQA was designed to serve several functions:

1. For SWRL, it provided an opportunity to extend operationally the technology of quality assurance in the context of instruction.
2. For the schools, it provided instructional management information concerning the first year installation of the Kindergarten Program, analyzed and arrayed differentially to assist future instructional planning of teachers, principals, and district administrators.

3. For the government, it provided a low cost and effective means of satisfying the evaluation requirements imposed when public funds are made available for a categorical educational purpose by the federal government.
4. For the publisher, it provided a means of assessing the effect of transferring a systematically developed instructional program into general availability to the nation's schools.
5. For the educational R&D community, it provided the first opportunity to test the claim that important instructional outcomes may be reliably attained in a variety of school settings with a wide variety of pupils through use of a systematically developed educational product.

The first four functions have been or will be satisfied by documentation outside the concern of the present report, which provides preliminary documentation pertinent to the fifth function. The report is an advanced data release in at least three senses:

1. The present summary by no means exhausts the analyses that can be derived from the TQA data. Additional analyses are currently in progress and will be reported as they are completed. The resource provided by the data base is rich, and it will be of interest to the educational R&D community for a considerable time.
2. The TQA program is being replicated during the 1973-74 school year with essentially the same school participants and operating procedures. These data will provide a means of cross-checking effects that could be artifacts of the single-year time frame.

3. All source data were carefully cleaned prior to entry into the data base. The source data recording by kindergarten pupils and teachers and the distribution and collection of records by district personnel were admirably performed. The size and complexity of the data base, however, is such that a small set of processing discrepancies affecting a single class or school (e.g., the data for Mrs. Jones should be in Jefferson School, not Adams School) have still to be corrected or resolved. These changes will modify the precise table entries in future reports but will not modify the findings and interpretations yielded by the tables.

TQA Participants

Table 1 presents the number of states, districts, schools, classes, and pupils that participated in each of the instructional programs (ICP, BRP, or both) and the number that used the available support programs: Parent Assisted Learning Program (PAL) and the Tutorial Program (TUTOR). For the ICP and BRP, these numbers represent the number returning one or more of the TQA components for that program.

Table 1

TQA Participants

	States	Districts	Schools	Classes	Pupils
ICP	18	343	2049	4503	115554
BRP	18	329	1967	4193	111114
BOTH	18	317	1859	3945	107278
TUTOR	18	173	579	965	24450
PAL	18	172	550	931	23439

The School Information Sheet

The School Information Sheet (SIS) was distributed to the participating districts to be completed for each school. The five questions on the SIS were demographic in nature (see copy in Appendix) and were selected because they would be easy for school personnel to provide and sufficient to characterize the TQA participants in terms commonly found useful by the profession and the public in distinguishing among school types. The results are summarized in Tables 2 and 3.

The initial question on the School Information Sheet was whether the school was eligible for LSEA Title I assistance. As Table 2 indicates, over 50 percent of the schools were so eligible, indicating that the TQA participants tend to reflect a high proportion of youngsters from families with poverty-level incomes.

The type of neighborhood in which the school was located was the second item on SIS. Table 2 data show a very heavy concentration of schools in urban areas with a high relative percentage of schools located in inner cities.

The characterization of the typical annual family income was the third area of information. The responses are categorized in Table 2 and show that the typical TQA school had family incomes of between $5,000 and $8,000. The 1970 census figures indicate that approximately 39 percent of the U.S. population are in this income bracket, while over 56 percent of the TQA schools were reported in this category. In general, the TQA participants tend to be less affluent than the general population.

Table 2

Demographic Information on 1972-73 TQA Participants

		Pupils*	Classes*	Schools
Eligible for ESEA Title I Aid	Yes	58189	2131	974
	No	50822	1831	823
Neighborhood	Inner City	15185	557	235
	Urban	40019	1444	724
	Suburban	38005	1379	568
	Rural	11320	426	212
Family Income	Less than 5,000	16964	620	260
	5,000 - 8,000	41719	1511	727
	9,000 - 12,000	33296	1212	545
	13,000 - 16,000	8962	336	142
	greater than 16,000	2600	90	41
National Reading Norms	Below	43487	1550	724
	At	32704	1213	557
	Above	19572	719	329

*Number of pupils and number of classes is the frequency of pupils and classes in schools with reported characteristic.

Since the ethnic minority composition of a school is of general current interest, participants were asked to indicate the percentage of pupils from the groups of Negro, Oriental, Spanish-surname Americans, and American Indians in the school. The results from this question are presented in Table 3. An estimate of the actual number and percentage of pupils in each of the ethnic groups is given followed by the frequency distribution at the pupil, class, and school levels. It should be noted that these frequencies correspond to the number in a school of a particular ethnic composition. For example, the first entry indicates 4,823 pupils and 170 classes are in schools that have an ethnic composition of 100 percent Negro, with 79 schools in that category. The percentage of Negro and Spanish-surname Americans participating in TQA are substantially higher than those for the total U.S. population.

The last item of information reported on SIS estimated the level of reading performance of the particular school. As the tabulations in Table 2 indicate, almost half of the schools were reported to have performed below the national norms on their most recent standardized reading test, and only about one-fifth of schools indicated performance exceeding the national norms.

The general conclusions warranted from this information are that from a demographic perspective the participating TQA schools tend to be low in income, poor in reading performance, high in ethnic minority composition, and heavily representative of urban areas. For each item of information the TQA participants predominately reflect characteristics conventionally associated with poor pupil achievement in school. These prevailing characteristics of the sample were due to circumstances

Table 3

Ethnic Minority Composition of 1972-73 TQA Participants

	Negro			Oriental			Spanish Surname			American Indian			Other**		
	N	%		N	%		N	%		N	%		N	%	
	22343	19.81		1104	.98		8093	7.18		536	.48		80708	71.56	
Racial Percentage	Pup.* f	Class. f	Schl. f	Pup. f	Class. f	Schl. f	Pup. f	Class. f	Schl. f	Pup. f	Class. f	Schl. f	Pup. f	Class. f	Schl. f
100	4823	170	79	35	1	1	0	0	0	0	0	0	23915	852	382
90-99	6785	243	112	0	0	0	500	21	10	225	10	2	29688	1096	505
80-89	1469	56	24	0	0	0	503	18	7	0	0	0	9368	347	165
70-79	2751	93	40	52	2	1	535	22	10	0	0	0	7784	278	125
60-69	1350	52	27	0	0	0	1347	45	18	0	0	0	6830	254	107
50-59	1560	60	31	115	5	2	2125	75	33	0	0	0	4944	181	84
40-49	3077	106	53	58	2	2	1944	70	34	0	0	0	3994	142	69
30-39	4645	173	68	276	12	4	2759	97	40	0	0	0	2605	94	48
20-29	3976	144	73	450	17	6	5249	196	81	157	5	3	4328	151	62
10-19	8727	317	140	1585	55	22	6293	227	106	302	11	5	2055	76	36
1-9	29812	1101	495	25010	921	395	32003	1183	536	13026	470	215	7582	272	123
0	40702	1468	670	82096	2968	1379	56419	2029	937	95967	3487	1587	6584	240	108

*Frequencies indicate number of pupils and classes in schools of a particular ethnic minority composition.

**Other category is defined as the percentage of non-minority (100% - sum of Negro, Oriental, Spanish Surname and American Indian).

entirely extrinsic to the TQA inquiry. However, they adventitiously set the occasion for an ideally rigorous test of the instructional utility of the program under conditions generally held to be educationally difficult.

The Entry Survey

The performance on the Entry Survey constitutes a baseline pupil performance indicator prior to kindergarten instruction (Coker and Legum, 1972). Table 4 includes the mean performance level and the frequency distribution for the pupil, class, school, and district levels. It can be seen that these data display the psychometric characteristics generally held desirable for purposes of distinguishing among participants prior to instruction. The mean level of performance is slightly above the mid-point of the score range. The distribution is fairly normal with a slight negative skew. As designed, the test functioned as a sound baseline indicator, reflecting expected normally distributed variability in pupil performance before instruction.

ICP Pacing

Tryouts in connection with the development of the ICP program (Resta and Hanson, 1971; Hanson, 1973) have confirmed the importance of instructional pacing as a consideration in describing the use of a systematically developed instructional program. The results from these tryouts indicated that a pacing schedule of at least two weeks per unit is typically required to progress through ICP. This pace has been recommended in the Quality Assurance Manual accompanying the KP program as the most ambitious rate that can reasonably be expected as a general rule.

Table 4

Entry Survey Performance of 1972-73 TQA Participants

	Pupils		Classes		Schools		Districts	
Mean	12.75		12.79		12.79		12.98	
S.D.	3.56		2.07		1.95		1.48	
Total N	115309		4515		2029		345	
Score Interval	f	%	f	%	f	%	f	%
0.00	382	.33	4	.09	2	.10	0	.00
0.01-1.00	176	.15	3	.07	1	.05	0	.00
1.01-2.00	326	.28	0	.00	1	.05	0	.00
2.01-3.00	569	.49	3	.07	0	.00	0	.00
3.01-4.00	871	.76	5	.11	1	.05	0	.00
4.01-5.00	1445	1.25	4	.09	3	.15	0	.00
5.01-6.00	2144	1.86	11	.24	3	.15	0	.00
6.01-7.00	3137	2.72	9	.20	4	.20	2	.58
7.01-8.00	4777	4.14	27	.60	10	.49	1	.29
8.01-9.00	6443	5.59	89	1.97	31	1.53	3	.87
9.00-10.00	8522	7.39	225	4.98	70	3.45	2	.58
10.01-11.00	10525	9.13	405	8.97	200	9.86	21	6.09
11.01-12.00	12541	10.88	685	15.17	316	15.57	45	13.04
12.01-13.00	13122	11.38	907	20.09	418	20.60	95	27.54
13.01-14.00	13064	11.33	908	20.11	466	22.97	99	28.70
14.01-15.00	11046	9.58	698	15.46	278	13.70	50	14.49
15.01-16.00	9501	8.24	347	7.69	153	7.54	21	6.09
16.01-17.00	6711	5.82	127	2.81	51	2.51	6	1.74
17.01-18.00	4624	4.01	41	.91	16	.79	0	.00
18.01-19.00	2983	2.59	11	.24	2	.10	0	.00
19.01-20.00	1168	1.01	5	.11	2	.10	0	.00
20.01-21.00	726	.63	0	.00	0	.00	0	.00
21.01-22.00	506	.44	1	.02	1	.05	0	.00

Pacing can be examined from a variety of viewpoints, including date of unit completion and duration of instruction (Table 5), and length of time using the program as a function of the number of units completed (Table 6).

The gradual progression through the units from September until January can be immediately discerned from the frequency distributions in Table 5. The mean completion dates for the units mirror this progression and show that the first unit was completed on the average by October 13 while unit seven was completed by January 5. The two interesting aspects of this information are first the great variability and second the average completion date of approximately two weeks per unit. These results correspond to those observed during the development tryouts of the program.

Table 5 additionally reports duration of instruction for each unit. The duration is reported in terms of instructional days based upon a five day instructional week and calculated by taking the number of weeks from the completion date of the previous unit and the completion date of the particular unit. As was mentioned previously the recommended length of instruction is approximately two weeks per unit. The durations for Shapes, Sizes, Pre-Mathematics, and Pre-Reading units are each close to the two-week interval suggested as a guideline in the program materials. Notice that the duration of the Amounts unit is very short while that for the next unit, Positions, is very long. This seemed suspicious since the content of these units does not differ in complexity from the other five units. Investigation of the frequency distribution of the unit

Table 5

Unit Completion Dates for ICP Program

	Colors			Shapes			Sizes			Amounts			Positions			Pre-Mathematics			Pre-Reading		
	C*	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D
Mean Date	OC13	OC13	OC6	OC27	OC27	OC20	NO10	NO10	NO3	NO17	NO17	NO10	DE15	DE8	DE1	DE29	DE29	DE22	JA5	JA5	DE29
S.D.	18.70	17.30	14.55	20.35	18.85	16.15	22.50	20.90	17.25	23.50	21.85	18.55	25.05	23.50	19.80	26.0	24.70	20.15	28.60	27.30	21.90
Mean Duration	---	---	---	9.00	9.10	8.90	11.20	10.95	11.05	4.35	4.85	3.85	15.85	15.65	16.40	12.40	12.50	12.85	7.30	7.55	7.70
S.D. Duration	---	---	---	8.33	6.50	5.25	9.70	7.90	6.65	12.05	10.30	9.35	11.25	10.05	8.05	8.95	7.95	7.15	12.50	11.25	8.95
Completion Date	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
JL 7				1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 4				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
AU 11	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 18	4	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 25	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 1	7	3	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 8	30	15	3	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 15	173	78	13	31	16	2	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0
SE 22	474	233	52	85	37	7	10	4	1	18	6	2	1	0	1	1	0	0	1	0	0
SE 29	721	319	60	344	150	29	36	15	1	48	19	4	3	2	0	0	0	0	1	0	0
OC 6	597	302	64	556	261	55	156	75	11	88	37	8	22	5	0	4	2	0	17	8	1
OC 13	442	217	36	575	277	58	355	162	31	201	95	16	24	10	2	3	1	0	51	23	1
OC 20	333	150	27	553	264	48	581	252	45	363	155	26	56	24	4	25	7	0	30	14	0
OC 27	213	101	13	342	164	32	502	255	62	468	218	52	140	61	14	17	13	1	22	7	0
NO 3	175	81	12	262	136	13	410	211	39	426	210	45	199	102	12	85	32	6	32	12	3
NO 10	126	63	3	229	108	21	356	174	33	454	226	45	401	172	37	114	49	4	57	27	5
NO 17	83	28	3	166	71	14	258	120	15	348	161	27	383	192	36	255	121	17	120	47	8
NO 24	31	17	3	98	45	3	187	89	24	228	111	21	366	165	41	222	111	29	135	66	9
DE 1	67	21	0	93	46	3	164	67	6	237	114	13	409	201	31	341	165	35	238	113	25
DE 8	84	40	5	60	26	2	139	63	6	163	70	11	348	157	30	473	203	38	277	124	28
DE 15	63	24	1	85	34	2	106	51	8	130	68	7	288	134	28	380	174	34	357	164	36
DE 22	23	10	0	63	27	3	83	36	1	75	37	3	142	71	13	245	120	21	303	132	23
DE 29	6	3	0	14	12	2	17	25	6	24	25	1	30	39	11	35	48	24	29	51	24
JA 5	6	4	0	26	10	1	45	17	2	57	24	4	114	65	6	153	87	19	141	86	25
JA 12	5	3	0	48	14	0	101	36	4	82	31	7	143	70	8	295	132	23	363	162	25
JA 19	[illegible]	[illegible]	[illegible]	23	6	0	67	25	0	92	36	1	131	54	6	234	106	12	279	118	23
JA 26	9	2	0	12	6	0	42	13	0	51	23	1	118	42	6	126	57	12	236	125	16
FE 2	4	0	0	8	4	1	35	14	0	41	25	0	100	44	6	140	61	1	149	71	10
FE 9	3	1	0	10	3	0	14	2	2	38	12	1	72	28	1	103	50	5	116	55	9
FE 16	7	1	0	4	1	0	16	8	0	29	5	1	52	25	2	101	41	5	102	45	1
FE 23	3	3	0	8	1	0	9	3	0	11	4	0	48	18	1	82	36	3	91	44	8
MR 2	1	0	0	0	0	0	12	3	0	8	2	1	32	15	1	54	22	4	78	32	2
MR 9	2	0	0	1	0	0	6	1	0	15	4	0	13	6	0	43	18	2	57	27	4
MR 16	0	1	0	2	2	0	1	0	0	6	2	0	31	6	0	42	16	1	65	26	3
MR 23	2	0	0	1	0	0	0	0	0	4	1	0	15	4	0	19	6	0	54	18	1
MR 30	3	0	1	3	0	0	4	1	0	5	2	0	9	4	0	15	6	0	41	18	2
AP 6	1	0	0	1	1	0	1	1	0	1	1	0	4	2	1	15	4	0	15	6	0
AP 13	0	0	0	1	0	0	1	0	0	0	0	0	4	2	0	7	5	0	6	3	0
AP 20	0	0	0	0	0	1	0	0	0	0	0	0	3	1	0	11	1	1	10	2	0
AP 27	0	0	0	1	0	0	0	0	1	0	0	1	2	0	1	5	3	1	3	4	2
MY 4	0	0	0	0	0	0	1	0	0	1	0	0	4	1	0	8	1	0	9	3	0
MY 11	2	1	0	2	1	0	3	1	0	2	1	0	3	1	0	6	3	0	15	3	0
MY 18	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	0	7	4	0
MY 25	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5	3	0
JN 1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	1	1	0
JN 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	2	0
Total N	3708	1725	299	3716	1726	299	3719	1725	298	3720	1726	298	3712	1723	298	3662	1704	298	3519	1663	296

*C = Classes, S = Schools, and D = Districts

Table 6

Number of Weeks using ICP Program for Different Unit Completion Groups*

	0-4 Units Completed			5-6 Units Completed			7 Units Completed		
	C**	S	D	C	S	D	C	S	D
Mean	7.64	6.78	6.95	14.44	14.41	14.14	14.88	14.98	15.09
S.D.	4.41	4.80	5.19	4.79	5.09	4.22	4.34	4.14	3.58
Total N	88	75	51	296	190	88	3404	1612	294
Number of Weeks	f	f	f	f	f	f	f	f	f
0-2	0	0	0	1	1	0	5	1	0
3	27	22	14	0	0	0	4	1	0
4	1	1	3	2	1	1	38	17	0
5	10	9	7	2	1	1	48	15	3
6	13	9	4	2	1	1	20	8	1
7	4	4	0	7	0	0	24	10	1
8	6	6	6	7	5	0	32	17	1
9	7	6	4	7	6	1	60	21	0
10	2	2	1	18	17	11	126	56	7
11	5	5	3	30	17	7	234	106	16
12	4	4	4	35	17	7	308	157	28
13	3	2	1	39	28	16	381	186	47
14	1	1	1	19	9	11	381	183	39
15	2	2	2	24	16	4	352	166	37
16	2	1	0	22	13	7	288	145	32
17				8	9	6	300	146	27
18				19	11	6	227	112	19
19				22	13	2	169	87	3
20				10	6	1	149	66	7
21				7	6	1	84	31	4
22				6	5	1	47	21	7
23				4	1	0	22	12	2
24				1	1	0	20	10	1
25				5	4	2	20	7	1
26				3	1	1	20	10	3
27							11	3	1
28							7	1	1
29				1	1	1	5	3	0
30-40	1	1	1				22	12	1

*Number of weeks was determined by determining number of weeks between first completion date and last completion date.

**C = Classes, S = Schools, and D = Districts.

duration indicated that a large number of classes reversed the sequence of instruction for the Sizes and Amounts units. The algorithm used to calculate the durations resulted in a tabled duration for the Amounts unit that is shorter than it should be and an entry for the Positions unit that is larger than it should be. This sequencing effect is also present to some degree in the average completion date for the three units. Overall, the tables indicate that the average duration for instruction on the ICP Units was close to the two-week guidelines provided in the QA Manual.

Table 6 reports program completion time. As might be expected, length of time in the program varies as a function of the number of units completed. However, it can be seen that there is great variability in the length of time in the program for a given number of units completed. This also reflects the wide range found in the unit durations and unit completion dates. These results suggest that length of time in the program is not a major factor in the completion of the ICP program.

ICP Unit Performance

Pupil performance on the ICP Unit Criterion Exercises is impressively high for a large percentage of participants, indicating a high level of pupil proficiency throughout the course of instruction with the program. Table 7 presents the frequency of scores obtained on each of the ICP Unit Criterion Exercises as well as the mean, standard deviation, and number of participants.

Table 7

ICP Unit Criterion Exercise Performance of 1972-73 TQA Participants

	Colors				Sizes				Amounts				Shapes				Positions				Pre-Mathematics				Pre-Reading			
Mean	11.09	11.07	11.07	11.16	10.56	10.55	10.55	10.65	10.42	10.41	10.40	10.53	10.70	10.69	10.70	10.81	9.92	9.91	9.92	10.03	9.52	9.52	9.52	9.70	9.89	9.88	9.88	10.08
S.D.	1.82	.62	.73	.45	1.67	.70	.72	.45	1.92	.93	.85	.57	2.00	.98	.86	.53	1.84	.98	.86	.53	2.18	1.19	1.08	.66	2.22	1.22	1.11	.63
Total N	98920	3917	1784	301	98738	3923	1784	301	98017	3916	1783	301	97836	3917	1782	301	96509	3902	1779	301	96367	3866	1758	301	88492	3478	1594	297
Score Interval	P*	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D
0	241	0	0	0	166	0	0	0	193	0	0	0	222	0	0	0	147	0	0	0	183	1	1	0	201	3	1	0
0.01-1.0	159	3	1	0	101	2	0	0	164	1	0	0	195	1	0	0	82	1	0	0	187	0	0	0	127	3	1	0
1.01-2.0	274	0	0	0	141	1	1	0	246	2	1	0	142	1	1	0	112	1	1	0	457	1	0	0	296	1	0	0
2.01-3.0	441	1	0	0	194	0	0	0	497	0	0	0	598	0	0	0	329	1	0	0	813	1	0	0	591	0	1	0
3.01-4.0	960	0	0	0	383	0	0	0	796	0	0	0	1056	0	0	0	662	1	0	0	1497	1	1	0	1290	1	0	0
4.01-5.0	1052	1	1	0	764	2	1	0	1377	1	0	0	1331	2	0	0	1532	0	0	0	2636	3	1	0	2351	3	1	0
5.01-6.0	1268	2	1	0	1384	1	0	0	1970	4	2	0	1707	2	1	0	2701	2	0	0	4211	23	4	0	3748	15	4	0
6.01-7.0	1466	4	3	0	2776	2	2	0	2965	11	2	0	2419	15	5	0	4861	15	3	0	6190	96	30	0	5198	44	14	0
7.01-8.0	2110	13	1	0	4637	24	5	0	4798	45	13	0	3740	42	12	0	6309	121	33	0	8824	306	121	3	6860	188	66	0
8.01-9.0	3237	61	11	1	6246	111	30	1	8165	236	99	6	5702	175	55	1	12534	473	195	11	12479	715	339	38	9291	500	241	16
9.01-10.0	7232	266	112	8	16538	665	297	21	16500	772	356	42	11599	507	225	19	20247	1306	655	123	18166	1258	634	163	13392	1011	499	102
10.01-11.0	16243	1053	512	75	29466	2009	990	227	24682	1799	876	200	18888	1428	722	159	26556	1648	771	159	21920	1153	522	92	19501	1347	646	161
11.01-12.0	64217	2515	1142	217	33950	1106	458	52	35644	1045	434	53	50237	1742	762	122	18417	333	121	8	16806	288	105	5	26648	562	220	18

*P = Pupils, C = Classes, S = Schools, and D = Districts.

ICP End-of-Program Performance

The selection of items for the end-of-program ICP forms were carefully performed to insure exhaustion of the item domains corresponding to the seven instructional units. Table 8 indicates that the high level of pupil performance reported for the ICP Unit Criterion Exercises was maintained through the end of the program. The means and the distributions indicate reliable instructional attainment of a high level of pupil proficiency on the program concepts.

BRP Pacing

A summary of the BRP pacing data is provided in Tables 9 and 10. Table 9 gives for each unit the average date of completion, standard deviation (in days), the average duration of instruction (in days), the standard deviation of the duration and a frequency distribution of the weeks during which it was completed. These data are given separately for classes, schools, and districts.

The data reflect the wide variability displayed by program users in pacing instruction over the year. This variability is especially evident in the completion of the first two units of BRP. The distribution of completion dates for Unit 1, for example, is tri-modal with substantial numbers completing it in the period between October 20 and December 22 and between January 12 and March 9 with a smaller number between April 27 and May 25. These completion groups reflect different user choices concerning when during the year to start BRP instruction. In prior program use, some users began BRP concurrently with instruction on the ICP, usually after completion of the first several

Table 8

ICP Assessment Performance for 1972-73 TQA Participants

	Pupils		Classes		Schools		Districts	
Mean	25.88		25.85		25.84		26.18	
S.D.	3.16		2.00		1.78		1.15	
Total N	100587		4160		1933		330	
Score Interval	f	%	f	%	f	%	f	%
0.00	14	.01	0	.00	0	.00	0	.00
.01-1.00	2	.00	0	.00	0	.00	0	.00
1.01-2.00	2	.00	0	.00	0	.00	0	.00
2.01-3.00	2	.00	0	.00	0	.00	0	.00
3.01-4.00	3	.00	0	.00	0	.00	0	.00
4.01-5.00	1	.00	0	.00	0	.00	0	.00
5.01-6.00	9	.01	0	.00	0	.00	0	.00
6.01-7.00	10	.01	0	.00	0	.00	0	.00
7.01-8.00	25	.02	0	.00	0	.00	0	.00
8.01-9.00	26	.03	0	.00	0	.00	0	.00
9.01-10.00	50	.05	0	.00	0	.00	0	.00
10.01-11.00	95	.09	0	.00	0	.00	0	.00
11.01-12.00	143	.14	0	.00	0	.00	0	.00
12.01-13.00	217	.22	0	.00	0	.00	0	.00
13.01-14.00	278	.28	0	.00	0	.00	0	.00
14.01-15.00	437	.43	2	.05	2	.10	0	.00
15.01-16.00	569	.57	1	.02	0	.00	0	.00
16.01-17.00	928	.92	0	.00	0	.00	0	.00
17.01-18.00	1231	1.22	3	.07	0	.00	0	.00
18.01-19.00	1773	1.76	8	.19	1	.05	0	.00
19.01-20.00	2506	2.49	20	.48	7	.36	0	.00
20.01-21.00	3340	3.32	40	.96	17	.88	0	.00
21.01-22.00	4433	4.41	97	2.33	35	1.81	0	.00
22.01-23.00	5384	5.35	175	4.21	64	3.31	3	.91
23.01-24.00	7023	6.98	316	7.60	164	8.48	11	3.33
24.01-25.00	8780	8.73	539	12.96	251	12.98	36	10.91
25.01-26.00	10990	10.93	789	18.97	376	19.45	78	23.64
26.01-27.00	12848	12.77	954	22.93	497	25.71	131	39.70
27.01-28.00	13900	13.82	743	17.86	365	18.88	56	16.97
28.01-29.00	13524	13.45	388	9.33	126	6.52	13	3.94
29.01-30.00	12044	11.97	85	2.04	28	1.45	2	.61

units of the latter. This leads to completion of the first unit of BRP prior to the traditional school holiday for Christmas (October 20 to December 20). Other users waited until ICP instruction had been completed before proceeding with BRP. This leads to the completion of the first unit before the spring recess. The third considerably smaller group completing Unit 1 late in the spring reflects a choice to use the BRP to introduce but not teach beginning reading during the kindergarten year. Other patterns are inevitably present, but the rates appear to be heavily influenced by school year traditions rather than instructional planning rationale.

Table 9 indicates that the average duration in school days for the BRP units range from seven to 13 across all units. This corresponds closely to the recommended schedule of two to three weeks per unit as given in the KP Quality Assurance Manual. The trend toward shorter intervals across units noted in earlier program tryouts is evident here, with the average class requiring about 13 days to complete Unit 2, 12 days to complete Unit 5, and 10 days to complete Unit 10.

Table 10 provides a summary of the BRP pacing data for three unit completion categories, with frequency distributions for participants completing less than 3, 4-6, 7-9, and 10 units. Also given for the four unit completion groups are the average number of weeks and the standard deviation. The average number of weeks spent in BRP goes up in a linear fashion across the four groups. It goes from 10 weeks for classes completing less than three units to 17 for those completing 4-6 units, to 22 for those completing 7-9 units, and to 25 for those completing all

Table 9

Unit Completion Dates for DAP Program

	Unit 1			Unit 2			Unit 3			Unit 4			Unit 5			Unit 6			Unit 7			Unit 8			Unit 9			Unit 10		
	C*	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D	C	S	D
Mean Date	JA19	JA19	JA19	FE16	FE16	FE16	MR9	MR9	MR9	MR30	MR30	MR30	AP6	AP6	AP13	AP20	AP20	AP20	AP27	AP27	AP27	MY4	MY4	MY11	MY18	MY18	MY18	MY25	MY25	MY25
S.D.*	34.05	34.00	27.70	32.20	31.90	25.35	30.45	30.10	23.15	27.65	27.20	21.25	25.15	24.45	19.80	22.30	21.95	17.25	19.50	19.00	15.40	16.85	16.20	16.00	13.40	13.20	11.15	13.25	12.95	9.50
Mean Duration*	---	---	---	21.85	21.65	21.80	17.10	17.15	16.10	15.80	16.00	15.95	11.85	11.95	11.65	9.85	10.10	9.85	9.05	9.10	8.75	12.20	12.15	11.50	10.85	10.70	9.60	9.65	9.60	9.60
S.D. Duration*	---	---	---	13.40	12.60	9.05	10.05	9.80	7.45	9.20	8.85	5.90	8.95	7.85	6.30	7.65	6.95	6.30	6.75	6.25	5.90	10.20	9.85	8.65	8.60	8.45	6.20	8.90	11.00	5.30
Completion Date	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
JL 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE 15	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
SE 22	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
SE 29	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC 6	12	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC 13	13	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC 20	35	17	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OC 27	52	27	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO 3	89	50	1	10	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO 10	123	53	8	17	8	0	4	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO 17	122	62	8	45	22	1	5	4	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
NO 24	94	49	10	37	17	0	4	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE 1	127	50	10	81	43	1	23	10	1	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
DE 8	91	55	14	74	30	5	18	7	1	4	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE 15	121	51	12	116	57	6	56	28	1	13	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE 22	89	53	9	71	43	8	40	24	0	6	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
DE 29	33	32	8	33	13	6	13	8	1	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JA 5	72	37	9	60	44	7	46	23	3	7	4	1	0	1	0	1	1	0	0	0	0	1	0	0	1	1	0	0	0	0
JA 12	141	75	17	111	49	10	69	28	4	29	12	0	8	1	0	1	1	0	0	0	0	1	1	0	0	0	0	2	0	0
JA 19	181	86	16	121	67	13	141	69	4	51	20	0	9	6	0	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0
JA 26	235	105	23	131	63	19	99	56	16	77	41	5	20	7	1	2	3	0	1	2	1	0	0	0	0	0	0	0	0	0
FE 2	212	102	27	159	82	14	105	52	12	110	51	1	42	20	1	2	2	0	1	0	0	1	1	2	1	1	0	0	0	0
FE 9	200	81	20	182	80	20	142	75	17	99	55	10	50	27	0	22	6	0	4	1	0	1	0	0	0	0	0	0	0	0
FE 16	170	96	16	227	110	16	140	81	18	116	57	9	126	53	4	29	9	1	6	4	0	1	1	0	1	1	1	1	1	1
FE 23	153	84	15	183	91	20	172	86	15	105	62	10	111	62	8	51	28	1	13	6	1	0	1	0	1	1	0	0	0	0
MR 2	146	76	13	155	88	23	192	84	22	144	75	18	115	65	6	127	59	5	67	19	1	8	4	0	1	0	0	0	0	0
MR 9	107	46	4	181	92	22	158	91	15	183	83	20	110	48	13	117	57	6	45	22	0	8	3	1	3	2	1	2	0	0
MR 16	89	43	5	210	95	18	180	87	22	175	88	21	152	81	16	120	72	7	119	50	5	26	12	1	6	5	0	2	2	0
MR 23	60	31	2	149	75	21	169	104	23	162	86	20	153	82	13	130	67	17	105	58	9	35	11	1	7	2	1	1	1	0
MR 30	45	19	4	121	60	6	188	82	14	183	91	16	176	86	23	151	89	17	155	69	4	26	15	3	13	7	0	2	2	0
AP 6	35	19	0	120	55	2	161	68	25	153	82	22	177	93	17	157	73	23	132	81	21	84	41	4	27	9	3	8	2	1
AP 13	31	12	1	81	31	4	140	71	12	194	100	22	177	90	15	195	91	22	166	86	30	110	57	9	41	21	2	19	6	0
AP 20	7	3	0	63	33	8	104	55	11	124	75	24	115	74	27	91	66	19	125	67	23	124	80	19	81	39	2	7	5	1
AP 27	18	9	1	44	24	2	65	43	6	126	60	15	117	62	21	129	86	25	133	76	19	140	82	24	57	31	8	23	13	2
MY 4	11	10	0	41	23	1	133	61	5	107	54	17	104	77	14	177	87	26	186	97	23	185	107	31	132	76	14	43	23	4
MY 11	13	7	4	41	12	1	67	34	3	107	56	6	144	80	32	142	73	25	150	98	33	210	99	30	173	93	34	65	35	10
MY 18	11	6	0	22	11	2	62	30	3	147	65	5	145	77	7	156	75	20	204	88	25	186	109	34	241	155	49	153	81	22
MY 25	15	3	0	25	10	0	51	23	1	85	46	4	116	66	7	155	86	11	151	78	19	168	98	28	240	128	36	212	132	40
JN 1	2	0	0	10	3	1	38	17	2	65	34	2	87	29	1	79	40	6	91	53	10	95	49	10	164	85	18	266	155	58
JN 8	2	1	0	7	5	0	28	10	0	51	23	3	56	26	2	61	31	1	57	26	2	85	45	8	66	41	11	239	128	25
JN 15	1	1	0	6	2	0	8	4	0	12	6	0	20	10	2	15	9	0	17	7	1	32	20	3	26	17	2	71	44	8
JN 22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1	1	0	0	0	0	1	0	0	13	8	4
JN 29	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total N	2964	1466	259	2964	1449	258	2844	1419	257	2641	1341	252	2395	1226	242	2122	1113	233	1910	1000	227	1580	858	208	1306	735	184	1169	661	177

*C = Classes, S = Schools, and D = Districts

Table 10

Number of Weeks using BRP Program for Different Unit Completion Groups*

	0-3 Units Completed			4-6 Units Completed			7-9 Units Completed			10 Units Completed		
	C**	S	D	C	S	D	C	S	D	C	S	D
Mean	9.97	9.67	9.88	17.17	17.17	17.48	22.00	22.07	21.78	25.29	25.27	24.06
S.D.	4.66	4.54	3.99	4.59	4.43	3.94	5.74	5.89	4.64	6.22	6.37	5.30
Total N	392	241	83	750	462	140	787	475	168	1107	615	172
Number of Weeks	f	f	f	f	f	f	f	f	f	f	f	f
0-10	206	132	48	38	23	5	9	4	1	20	10	2
11	38	17	7	19	13	3	8	2	0	1	2	1
12	32	28	5	19	11	1	5	8	3	6	3	0
13	21	14	4	45	28	11	13	9	2	7	5	2
14	26	17	8	49	35	12	11	7	4	14	5	0
15	21	11	4	64	39	8	20	12	3	14	8	2
16	20	6	3	88	56	19	43	27	4	13	9	2
17	7	4	1	86	59	16	39	24	10	28	14	4
18	7	2	0	85	47	14	69	42	10	35	17	11
19	8	8	3	90	41	13	65	31	12	39	22	12
20	2	1	0	46	29	10	75	44	24	51	32	12
21				32	20	7	58	34	14	68	43	10
22				22	17	5	46	30	10	82	45	14
23	3	1	0	18	10	5	44	24	14	59	31	13
24	1	0	0	13	9	4	35	30	16	43	22	9
25				4	3	2	29	15	7	44	23	7
26				8	7	3	35	16	7	62	39	9
27				6	4	1	27	17	11	48	31	11
28				2	2	0	44	30	3	63	29	9
29				2	1	0	23	13	3	87	48	15
30				4	3	1	26	12	2	74	41	3
31				6	3	0	17	16	2	90	44	11
32				1	1	0	16	8	3	53	24	5
33-40				3	1	0	30	20	3	104	68	8

*Number of weeks was determined by determining number of weeks between first completion date and last completion date.

**C = Classes, S = Schools, and D = Districts

10 units. The progression is clear and shows the direct relationship between time spent on the program and number of units completed.

BRP Unit Performance

The performance of classes, schools, and districts on the 10 BRP Unit Criterion Exercises is summarized in Table 11. These data indicate that high levels of performance were attained across all units. The modal pupil score on all 10 units was the maximum score of 22, and all distributions displayed a distinct positive skew. Overall mean scores ranged from 16.53 to 18.24, reflecting the small amount of variability across units.

BRP End-of-Year Performance

Summaries of the results of the BRP End-of-Year performance measure are given in Tables 12, 13, and 14. The overall performance by pupils, classes, schools, and districts is given in Table 12. The distributions of pupils across score categories indicate that the highest score category is the modal score for each of the four program outcome areas. Also, the pattern of frequencies from the lowest category, i.e., 0, to the highest is increasing for all outcomes except Sentences, where an unusually large number of pupils are shown in the 0 category. Examination of the actual assessment records and booklets completed by pupils helps explain this figure. The Sentence section of the BRP Assessment is individually administered; the other sections are group administered. In the press of time at the end of the school year some teachers did not administer this segment of the assessment and recorded zero in the absence of

Table 11

MHP Unit Completion Exercise Performance of 1972-73 YDA Participants

	Unit 1				Unit 2				Unit 3				Unit 4				Unit 5				Unit 6				Unit 7				Unit 8				Unit 9				Unit 10			
Mean	17.02	17.09	17.06	17.20	17.32	17.21	17.15	17.32	16.53	16.67	16.60	16.66	17.35	17.52	17.67	17.52	17.25	17.47	17.44	17.41	17.50	17.69	17.67	17.60	17.47	17.71	17.72	17.63	17.36	17.65	17.67	17.59	17.90	18.21	18.24	18.21	17.76	18.12	18.11	18.06
S.D.	3.53	2.02	1.87	1.29	3.36	1.96	1.81	1.33	3.53	2.06	1.95	1.37	3.60	1.95	1.88	1.48	3.52	1.98	1.87	1.43	3.17	1.80	1.67	1.36	3.19	1.84	1.73	1.52	3.46	1.98	1.85	1.49	3.35	1.83	1.79	1.38	3.22	1.88	1.77	1.62
Total N	78017	3193	1324	262	72217	3167	1509	261	65503	1728	1672	260	59351	2818	1588	258	51674	2563	1373	264	44968	2262	1256	237	39230	2071	1039	230	32672	1690	895	208	25635	1386	758	187	22278	1231	660	179
Score Interval	P*	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D	P	C	S	D
0	122	0	0	0	106	0	0	0	78	0	0	0	59	0	0	0	48	0	0	0	33	1	0	0	35	1	0	0	44	1	0	0	34	1	0	0	39	1	0	0
0.01-1.0	66	0	0	0	59	0	0	0	40	0	0	0	29	0	0	0	23	1	0	0	20	1	0	0	20	1	0	0	15	0	0	0	16	0	0	0	7	0	0	0
1.01-2.0	86	2	0	0	74	1	0	0	54	1	0	0	42	1	0	0	42	0	0	0	29	0	0	0	19	0	0	0	30	0	0	0	18	0	0	0	19	0	0	0
2.01-3.0	143	0	0	0	98	0	0	0	106	0	0	0	85	0	0	0	76	0	0	0	69	0	0	0	57	0	0	0	54	0	0	0	24	0	0	0	17	0	0	0
3.01-4.0	195	0	0	0	148	0	0	0	178	0	0	0	149	0	0	0	154	0	0	0	64	0	0	0	55	0	0	0	53	0	0	0	41	0	0	0	39	0	0	0
4.01-5.0	278	1	0	0	299	0	0	0	292	0	0	0	277	0	0	0	218	0	0	0	92	0	0	0	90	0	0	0	130	0	0	0	67	0	0	0	66	0	0	0
5.01-6.0	500	0	0	0	469	0	0	0	506	0	0	0	409	1	0	0	350	0	0	0	169	0	0	0	134	0	0	0	178	0	0	0	95	0	0	0	95	1	0	0
6.01-7.0	1055	1	1	0	589	0	0	0	563	1	0	0	467	0	0	0	578	1	0	0	256	1	0	0	212	1	1	1	232	2	1	0	132	2	1	0	103	1	1	0
7.01-8.0	927	1	0	0	681	2	1	0	825	0	1	0	566	0	2	1	610	1	1	0	396	1	1	0	345	1	0	0	336	0	0	0	192	0	0	0	168	0	0	0
8.01-9.0	997	6	2	0	836	3	1	0	1060	3	0	0	695	2	0	0	739	4	1	0	491	0	0	0	396	0	0	0	447	0	0	0	248	1	0	0	210	1	0	0
9.01-10.0	1247	8	4	0	1118	8	4	1	1410	7	3	1	830	7	2	0	898	6	1	0	606	2	1	1	534	2	1	0	578	3	2	0	296	1	0	0	258	2	0	0
10.01-11.0	1516	16	3	1	1354	18	5	0	1806	24	12	0	1044	15	7	0	1005	13	5	1	748	7	3	0	730	5	1	0	734	8	2	0	417	4	2	0	362	1	1	1
11.01-12.0	1685	29	19	0	1706	33	11	1	2359	53	26	0	1365	23	11	0	1150	22	12	0	912	11	5	0	921	9	7	0	813	14	6	0	488	9	5	0	412	9	5	0
12.01-13.0	2617	67	27	4	2169	58	23	2	2854	105	44	4	1626	54	31	1	1445	47	19	1	1149	25	14	1	1109	29	9	1	930	28	10	2	566	11	10	2	508	14	11	3
13.01-14.0	3127	122	53	1	2864	109	49	1	3703	137	67	4	2108	80	38	6	1654	67	34	7	1482	45	15	3	1504	38	18	5	1151	37	17	3	663	18	7	0	542	24	6	2
14.01-15.0	3918	196	85	6	3687	170	91	4	4546	254	140	16	2711	99	54	6	2286	116	61	7	1944	87	37	5	1985	74	35	7	1403	67	41	7	955	35	14	5	781	24	9	2
15.01-16.0	3363	260	146	34	4453	240	144	20	5523	346	198	34	3584	220	114	18	3004	214	110	16	2917	155	94	10	2679	143	73	11	1823	141	70	15	1345	52	28	6	1045	61	29	8
16.01-17.0	4987	321	271	60	4832	409	217	35	6548	525	333	64	4819	369	183	44	4069	334	177	40	4025	271	164	27	3923	259	158	45	2590	205	105	28	1975	119	96	22	1536	128	69	19
17.01-18.0	5527	525	381	95	5868	735	370	81	8039	695	560	82	7386	560	360	73	6427	467	350	75	6270	442	276	60	6077	410	221	56	3532	291	170	45	2667	225	111	28	2062	189	97	26
18.01-19.0	11879	765	769	76	11467	866	604	75	10570	571	540	52	10803	698	438	80	9835	668	540	60	9686	665	351	70	9310	587	297	75	7005	650	250	56	4997	335	170	34	4205	311	176	58
19.01-20.0	29363	698	703	52	23936	603	369	52	15663	340	185	3	20843	396	209	28	17350	301	180	39	15660	407	255	35	13981	466	257	36	11007	465	232	31	7503	377	158	41	6987	448	256	52

* P = Pupils, C = Classes, S = Schools, and D = Districts.

Table 12

DRP Assessment Performance for 1972-73 TQA Participants

	Words				Word Elements				Letter Names				Sentences			
	Pupils	Classes	Schools	Districts	Pupils	Classes	Schools	Districts	Pupils	Classes	Schools	Districts	Pupils	Classes	Schools	Districts
Mean	12.50	12.53	12.66	12.90	6.82	6.84	6.90	7.00	5.19	5.21	5.22	5.29	5.05	5.44	5.55	5.67
S.D.	4.63	3.09	2.68	2.10	2.21	1.35	1.24	.89	1.22	.64	.54	.35	3.38	2.27	2.13	1.67
Total N	91562	4087	1931	314	91474	4086	1930	314	91452	4088	1931	314	90969	4078	1929	314
Score Interval	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
0.0	485	1	0	0	767	1	0	0	740	0	0	0	10188	16	2	0
.01-1.00	481	1	0	0	1222	2	0	0	1663	1	0	0	5693	91	30	1
1.01-2.00	857	5	0	0	2868	4	1	0	2652	6	1	0	5345	211	82	7
2.01-3.00	1535	8	2	0	4861	19	7	0	4236	27	8	0	6008	363	137	8
3.01-4.00	2436	11	7	0	6341	102	35	0	7586	191	57	1	8147	494	219	38
4.01-5.00	3300	18	6	1	7831	360	117	11	22625	988	467	58	7973	563	301	43
5.01-6.00	3522	67	20	0	9585	571	276	31	51950	2875	1398	255	7216	640	328	81
6.01-7.00	4053	109	43	1	12438	946	495	95					6908	538	293	70
7.01-8.00	4264	148	36	4	17141	1258	622	148					7815	369	269	43
8.01-9.00	4598	224	95	9	28420	843	377	29					6633	401	186	17
9.01-10.00	4527	282	134	15									14845	182	82	6
10.01-11.00	4702	361	170	26												
11.01-12.00	5161	395	207	42												
12.01-13.00	5663	446	226	36												
13.01-14.00	6382	501	252	61												
14.01-15.00	7101	518	262	53												
15.01-16.00	8516	463	231	30												
16.01-17.00	10053	380	158	15												
17.01-18.00	13986	149	62	1												

another score to record. The effect of this action was to inflate the number of zero scores for the Sentence outcome, lower the overall mean, and inflate the standard deviation.

This effect can be seen more clearly in Table 13, which summarizes the BRP Assessment results for all pupils in classes completing 10 units of the program. As in Table 12, the mean, standard deviation, total N and a frequency distribution of pupils by score categories is given for each of the four outcomes. As expected, the overall mean scores are considerably higher for this subgroup across all outcomes. The distributions of scores are all highly skewed with between one-third to one-half or more of the pupils falling into the highest score category. The clear discrepancy in the frequency for the zero score category on the Sentence outcome is apparent in this table.

Table 14 summarizes the BRP Assessment information for three categories of Entry Survey performance: classes with initial average scores less than 10.01, 10.01 to 15.00, and greater than 15.00. It should be noted that these three groups do not represent a trichotomy of the classes in terms of mean Entry Survey performance. Rather, classes with a mean score of less than 10.01 represent 8.4 percent of the total sample; those scoring between 10.01 and 15.00 represent 79.8 percent, and those scoring above 15.00 represent 11.8 percent. Thus, the low and high categories represent a very selected sample of classes while the middle category includes the large majority of users.

Although the results for these three groups of classes show some differences, the overall pattern of performance is quite similar, and

Table 13

BRP Assessment Performance for
Pupils in Classes Completing all Units of BRP Program

	Words	Word Elements	Letter Name	Sentence
Mean	14.67	7.60	5.46	7.15
S.D.	3.98	1.90	1.00	3.24
Total N	20601	20598	20573	20557
Score	f	f	f	f
0	40	82	95	1490
1	45	148	156	604
2	86	328	319	618
3	198	576	541	777
4	257	757	1119	959
5	328	1025	4583	1115
6	349	1488	13760	1251
7	459	2323		1589
8	480	4233		2140
9	503	9638		2488
10	486			7526
11	626			
12	747			
13	989			
14	1297			
15	1688			
16	2418			
17	3535			
18	6070			

Table 14

BRP Assessment Performance for Pupils from Classes of Different Entry Survey Levels that Completed the Entire BRP Program

	Entry Survey Levels											
	0.0 - 10.00				10.01 - 15.00				15.01 - 20.00			
	Words	W. Elements	Letters	Sentences	Words	W. Elements	Letters	Sentences	Words	W. Elements	Letters	Sentences
$\bar{X}$ =	12.64	6.60	5.05	5.75	14.52	7.53	5.43	7.00	15.74	8.08	5.68	8.13
S.D. =	4.95	2.70	1.35	3.79	4.03	1.94	1.02	3.29	3.15	1.47	.70	2.62
N =	968	968	981	979	14381	14381	14353	14347	2836	2838	2831	2831
0	2	9	11	166	33	65	73	1127	1	3	6	72
1	5	18	18	59	34	110	123	437	1	8	4	49
2	13	35	47	41	63	254	234	462	3	14	14	51
3	23	72	67	50	154	414	400	564	5	40	24	66
4	49	70	70	52	178	557	847	709	14	49	95	95
5	33	74	243	55	245	762	3276	826	22	87	530	112
6	30	100	525	54	277	1087	9400	934	21	153	2158	135
7	39	100		76	344	1697		1136	42	279		189
8	54	159		79	339	2975		1490	38	581		313
9	30	331		103	359	6460		1682	59	1624		392
10	39			244	345			4980	42			1357
11	39				460				57			
12	36				567				69			
13	55				696				118			
14	53				941				151			
15	69				1225				212			
16	87				1720				318			
17	132				2431				530			
18	180				3970				1133			

differences in average performance are relatively small on each of the program outcomes. The data again indicate high reliability of BRP outcome attainment across all classes, irrespective of the pre-kindergarten instructional proficiency of the pupils.

Preliminary Conclusions

The summary data consistently indicate reliable attainment of a high level of pupil proficiency on the instruction outcomes of the SWRL/Ginn Kindergarten Program. This attainment was achieved in a wide variety of school settings with a wide variety of pupils. Schools and individuals conventionally characterized as educationally difficult were prominently represented in the highest proficiency levels.

The chief routes for further improving the effectiveness of the program in use appear to relate not to the characteristics of the pupils or the program but to the pacing of instructional segments. This variable is directly manipulable by the teacher and appears amenable to change by informed efforts toward this end.

The findings of this study depart sharply from other study reports of "disappointing results," "no difference," and "negative evidence" that have been issued in a steady stream and with increasing force in education in the last few years. The distinguishing feature of the present study is the availability of a systematically developed educational product for use in attaining the instructional outcomes sought. The consistency of the findings across measures and forms, and across environmental contexts, makes it unlikely that the results occurred by "chance." However, the future will provide regular occasions for routinely testing for this possibility.

One swallow does not make a summer. Although the data indicate that a large percentage of the participating youngsters were off to a good start in school, there is no reason to expect that their proficiency will be effectively extended in the absence of instructional products that make this a feasible expectation. Such products are simply not available at present. However, the sequence of events to develop an adequate set of instructional products for use in the nation's schools is well within the present state-of-the-art.

APPENDIX

A brief summary of the Kindergarten Program and Title III Quality Assurance is presented for background in interpreting the report.

The Kindergarten Program

The SWRL/Ginn Kindergarten Program is a research-based program to help kindergarten children learn conceptual skills fundamental to academic achievement and to master beginning reading skills.

The Kindergarten Program consists of four subsystems:

- the instructional systems include the Instructional Concepts Program and the Beginning Reading Program;
- instructional support systems include the Tutorial, Parent-Assisted Learning, and Summer Reading Programs;
- school personnel training systems have been developed for each of the instructional systems and the Tutorial Program;
- the assessment materials and procedures of the Quality Assurance Program provide a means of determining that prespecified instructional outcomes are attained.

The Instructional Concepts (ICP)

Concepts taught pertain to colors, sizes, shapes, amounts, positions, and comparisons. Successful participation in the program enables each child to utilize 96 concept terms. Instructional materials and procedures are presented in seven units, each requiring between one and three weeks to complete. At the end of each unit, a 12 item Unit Criterion Exercise is provided to assess pupil learning.

The Beginning Reading Program (BRP)

Beginning reading skills are taught in a program designed to be pleasant and successful. By the end of the kindergarten year the children learn to:

1. Read the 100 words taught directly in the program.
2. Sound out and read new words composed of word elements taught in the program.
3. Demonstrate comprehension of the material they read.

Instructional materials and procedures are presented in ten units, each typically requiring between one to three weeks to complete. After the completion of instruction on each unit, a twenty item Unit Criterion Exercise is provided to assess pupil learning of letter names, word elements, words, and word attack.

1972-73 Quality Assurance (TQA) Materials

The 1972-73 Quality Assurance (TQA) includes specific materials and procedures to help each district, school and class report the results of using the Kindergarten Program during 1972-73 in connection with an ESEA Title III grant. A District TQA Coordinator was assigned by the District Superintendent to be responsible for the distribution, preparation, and gathering of TQA materials.

The TQA materials and procedures constitute a new instructional evaluation approach. In contrast to prevailing evaluation approaches, QA is program-referenced, rather than individual-referenced. That is, by design and conduct, QA provides information expressly and exclusively concerned with experience during the course of the year in using the Kindergarten Program. QA reflects the contribution of individual participating pupils and school personnel, but it is expressly designed and conducted to prevent the use of QA information to support evaluative assertions about either pupils or school personnel. The program-referenced characteristics of QA are evident in all QA reports and in all

aspects of the materials. For example, all information identifying participating pupils is removed by the teacher prior to forwarding completed QA materials to the Coordinator. Participating teachers are at no time identified. A numerically-assigned address is used by the Coordinator in exchanging materials and reports with participating teachers. The following items of information were completed by participating teachers.

Entry Survey - The Entry Survey is a set of 22 items to be administered to pupils prior to or at the start of Kindergarten. These items cover specific semantic concepts such as use of "before" and "after" and verbal skills such as recognizing letter names and simple words. Three sample items are given below:

ILLUSTRATION	QUESTION
	Point to the large cake.
	Point to the shoe after you point to the car.
h	What is the name of this letter?

The items are included in a booklet for administration by teachers. The teacher indicates the pupil's response to each item on the Entry Survey Pupil Response Sheet.

ICP Unit Report - This Report is used to provide a record of the scores and completion dates of the seven ICP Unit Criterion Exercises. The information is recorded on the Report by the teacher as each unit is completed. Part of a completed report is illustrated below:

ICP UNIT REPORT

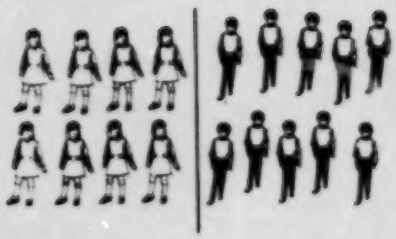
PUPIL		UNIT 1			UNIT 2			UNIT 3			UNIT 4			UNIT 5			UNIT 6			UNIT 7		
		SCORE	DATE		SCORE	DATE		SCORE	DATE		SCORE	DATE		SCORE	DATE		SCORE	DATE		SCORE	DATE	
			MO	DAY		MO	DAY		MO	DAY		MO	DAY		MO	DAY		MO	DAY		MO	DAY
Alpha, A	1	10	10	2	9	10	16	12	10	31	6	11	9	8	11	26	11	12	10	12	1	7
Beta, B	2	6	10	10	5	10	31	7	11	14	3	11	30	4	12	14	8	1	7	7	1	21
Gamma, G	3	12	10	3	10	10	17	11	11	1	9	11	12	10	11	27	11	12	10	11	1	7
Delta, D	4	9	10	10	10	10	31	11	11	14	11	11	30	9	12	14	10	1	7	10	1	21
Epsilon, E	5	8	10	3	9	10	16	8	11	1	7	11	30	6	12	14	8	1	11	7	1	25
	6																					

ICP Assessment - The ICP Assessment is a set of 30 individually administered items sampling the seven ICP units. Each item requires that the pupil respond by either pointing to an appropriate object or making a verbal response. Several of the items included on the Assessment are given on the following page:

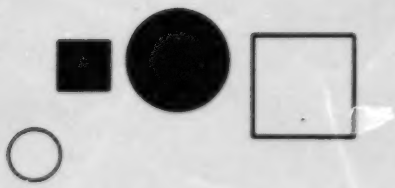
ILLUSTRATION

QUESTION

Point to the shovel with less sand.



Point to the side (of the page) with 8 children.



Point to the smaller white object.

The items are included in a booklet for administration by teachers. The pupils' responses to each item are recorded on the ICP Pupil Response Sheet as the assessment is administered.

BRP Unit Report - The BRP Unit Report provides a record of the unit scores and completion date for each pupil on the ten BRP units. Each BRP Unit Criterion Exercise includes a total of 20 items with five items referenced to each of the four major program outcomes (words, word elements, word attack, letter names). Each of these four outcome scores and the completion date is recorded by the teacher as the units are completed. An illustration of a completed portion of this Report is given below:

BRP UNIT REPORT

PUPIL		UNIT 1							UNIT 2							UNIT 3						
		OUTCOME				TUTOR	DATE		OUTCOME				TUTOR	DATE		OUTCOME				TUTOR	DATE	
		1	2	3	4		MO	DAY	1	2	3	4		MO	DAY	1	2	3	4		MO	DAY
Alpha A	1	2	4	5	5	T	9	25	4	3	4	3	T	10	9	5	5	5	4	T	10	23
Beta B	2	3	5	4	4		9	27	1	2	5	5		10	18	4	4	5	3		11	1
Gamma G	3	1	2	2	1	B	9	26	2	3	2	2	B	10	24	3	3	2	2	B	11	14
Delta D	4	5	4	4	5		9	25	4	4	5	4		10	10	5	5	5	4		10	3
Epsilon E	5	3	2	3	4	P	9	25	3	4	4	3	P	10	10	3	2	4	4	P	10	30
	6																					
	7																					
	8																					
	9																					
	10																					
	11																					
	12																					
	13																					
	14																					

BRP Assessment - This Assessment consists of a set of 43 items which sample from each of four program outcome areas. These items are administered by teachers to all pupils at the end of the school year. The first three parts of the assessment are designed to be group administered while the fourth part (sentences) is individually administered. After administration, the teacher totals the number of items answered correctly in each outcome-section and records this information on the BRP Assessment Record. Presented below is an illustrative item from each outcome section.

Assessment Section	Sample Item	# of items
Words	Mark the word **them**	18

the	Sam	them	this
☐	☐	☐	☐

Word Elements	Mark the letter or letters for the sound **ell**	9

ill	et	it	ell
☐	☐	☐	☐

Letter Names	Mark the letter **c**	6

s	e	o	c
☐	☐	☐	☐

Sentences	Read the Sentence.	10

Mit is in his bed.

School Information Sheet - In addition to the five TQA classroom components, the district coordinator is asked to complete a one page School Information Sheet for each school in TQA. This information Sheet reports basic demographic information for the school.

Other TQA Materials - To assist the teacher and district coordinator in using the materials described above, brief Guides were prepared. The TQA Teachers Guide was distributed to each participating teacher at the beginning of the school year. It provides a description and schedule of TQA activities and events.

The TQA District Coordinators Guide and Checklist was provided to each Coordinator to assist in the operation of TQA. The Guide describes the TQA components and critical events. The Checklist is designed to help the Coordinator keep track of the receipt, distribution, completion and return of TQA materials.

TQA Information Reports and Guides - A separate customized analysis and report was distributed to each participating teacher, principal and superintendent. Each report included the information fully describing the program status within the organizational unit with which a given individual is associated, with the data aggregated to present the information in the most economically and easily interpretable form possible. Separate Interpretation Guides for the classroom, school, and district reports were prepared and the appropriate guide was distributed with each information analysis.

SCHOOL INFORMATION SHEET

A sheet may be used for each school in your district using the SWRL/Ginn Kindergarten Program.

State: _____

District: _____

School: _____

1. Is this school eligible for ESEA Title I assistance:

   Yes _____ No _____

2. How would you characterize the neighborhood in which this school is located (e.g., urban, rural, suburban, inner city)?

   _____

3. How would you characterize the typical annual family income of pupils attending the school? (check one)

   below $5,000 _____
   $5,000-$8,000 _____
   $9,000-$12,000 _____
   $13,000-$16,000 _____
   above $16,000 _____

4. Indicate the percentage of minority group pupils of the total enrollment of this school.

   Negro _____%

   Oriental _____%

   Spanish Surnamed American _____%

   American Indian _____%

5. How would you characterize the most recent standardized reading test performance for this school? (check one entry for each row)

	Above Grade	About at Grade	Below Grade
District Norms	_____	_____	_____
State Norms	_____	_____	_____
National Norms	_____	_____	_____

Comments or clarification concerning distinctive features of the school that you regard as pertient to TQA:

References

Coker, P.L. and Legum, S.E. Design of the Kindergarten Program Entry Survey. Technical Note 2-72-33, September 5, 1972, SWRL Educational Research and Development, Los Alamitos, California.

Hanson, R.A. Kindergarten Program Quality Assurance Tryout: Pupil Performance and Instructional Pacing, 1971-72. Technical Memorandum 5-73-03, October 9, 1973, SWRL Educational Research and Development, Los Alamitos, California.

Hanson, R.A. and Bailey, J. General Structure and Operation of the 1972-73 Title III Quality Assurance Program. Technical Note 5-73-09, November 21, 1973, SWRL Educational Research and Development, Los Alamitos, California.

Resta, P. and Hanson, R.A. Identification of Installation Requirements for the SWRL First Year Communication Skills Program: Evaluation Data, 1968-69. Technical Report 31, June 4, 1971, SWRL Educational Research and Development, Los Alamitos, California.